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FEDERAL COMMUNICATIONS COMMISSION  
Washington, DC 20554

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FEDERAL COMMUNICATIONS COMMISSION  
OFFICE OF THE SECRETARY

In the Matter of the Petition of )  
)  
Satellite Industry Association )  
) RM No.:  
To Amend Part 15 of the Commission's Rules )  
to Extend Protection from Radar Detectors to )  
Ka Band Frequencies )  
)

**ORIGINAL****PETITION FOR RULEMAKING**

Pursuant to Section 1.401 of the Commission's Rules, the Satellite Industry Association ("SIA") hereby petitions the Commission to institute a rulemaking proceeding to amend Section 15.109(h) of the Commission's Rules<sup>1</sup> to require radar detectors to comply with the 500  $\mu$ V/meter limit within the Ka band downlink frequencies at 18.3-18.8 GHz and 19.7-20.2 GHz. Extending current radar detector limits to these frequencies designated for the geostationary orbit (GSO) Fixed Satellite Service (FSS) will help ensure that the new broadband services emerging in the Ka band will not be subject to harmful interference from the operation of nearby radar detectors.

SIA requests that the Commission promptly initiate this rulemaking proceeding because a number of SIA members are preparing to launch their Ka band satellites and to initiate commercial Ka band broadband services within the next year. For the same reasons that the Commission articulated when it limited radar detector emissions in the Ku band last year, it is essential that broadband service over these new Ka band satellite systems be protected from harmful interference generated by the operation of nearby radar detectors. Most important,

<sup>1</sup> 47 C.F.R. § 15.109(h).

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adopting the proposed emissions limit now, before commercial Ka band service commences, will forestall even the possibility that radar detector interference in the Ka band could reach the crescendo that required urgent Commission relief in the Ku band less than one year ago.<sup>2</sup>

## **I. BACKGROUND**

On October 15, 2001, the Commission issued a Notice of Proposed Rule Making proposing to amend Parts 2 and 15 of its Rules to require that radar detectors comply with emissions limits in order to prevent interference to certain satellite earth station operations.<sup>3</sup> The Commission specifically noted reports of radar detector interference into very small aperture terminal ("VSAT") earth stations.<sup>4</sup>

In response to the NPRM, SIA and many other satellite interests documented numerous instances of harmful interference attributable directly to the operation of radar detectors that were in close proximity to Ku band satellite earth terminal receivers. These examples clearly demonstrated the harm that radar detectors had been causing into VSATs and other critical satellite operations, such as the telemetry, tracking and control communications that ensure the proper functioning of in-orbit spacecraft.<sup>5</sup> Further, the satellite industry provided

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<sup>2</sup> *Review of Part 15 and other Parts of the Commission's Rules*, ET Docket 01-278, First Report and Order, 17 FCC Rcd 14063 (2002) ("Ku Band Radar Order").

<sup>3</sup> *Review of Part 15 and other Parts of the Commission's Rules*, ET Docket 01-278, Notice of Proposed Rulemaking and Order, FCC 01-290 ¶¶10-14 (rel. Oct. 15, 2001).

<sup>4</sup> *See id.* at ¶ 11.

<sup>5</sup> *See, e.g.*, PanAmSat Corporation Comments, ET Docket 01-278 at 3 (filed Feb. 12, 2002); Loral Space & Communications Ltd. Comments, ET Docket 01-278 at 1, Exhibit 1 (filed Feb. 12, 2002); SES Americom, Inc. Comments, ET Docket 01-278 at Appendix A (filed Feb. 13, 2002); Hughes Network Systems, Inc. Comments, ET Docket 01-278 at 4 (filed Feb. 13, 2002); Hughes Network Systems, Inc. Reply Comments, ET Docket 01-278 at 2-3 (filed Mar. 12, 2002).

quantitative evidence of the levels of radar detector emissions that were causing harmful interference into VSATs operating in the Ku band downlink frequencies.<sup>6</sup>

Based on demonstrated harm caused by levels of radiated emissions from radar detectors that previously were unconstrained by Part 15, the Commission amended its Rules to require (i) that radar detectors limit radiated emissions in the 11.7-12.2 GHz band to the 500  $\mu$ V/m level specified in Part 15, and (ii) that all radar detectors be certified before they are marketed to ensure they comply with the Part 15 emission limits.<sup>7</sup> In the Ku Band Radar Order, the Commission confirmed that the high level emissions from radar detectors that were causing harmful interference to VSATs were far above what Part 15 contemplated would be emitted by unlicensed devices: “Tests on several radar detectors at the Commission’s laboratory found emission levels ranging from 33,000  $\mu$ V/m to 231,000  $\mu$ V/m at 3 meters within the VSAT band . . . . These levels are far greater than the satellite receive signal levels in the 11.7-12.2 GHz band . . . . and are over 200 times greater than the Part 15 limit for spurious emissions above 960 MHz.”<sup>8</sup>

The Commission indicated that it would, at that time, adopt emission limits for radar detectors only in the 11.7-12.2 GHz band, because of the clearly demonstrated harm to currently operating VSAT networks, and that the Commission would expand the scope of the rules if the need became apparent.<sup>9</sup>

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<sup>6</sup> See, e.g., SES Americom, Inc. Comments, ET Docket 01-278 at Appendix A (filed Feb. 13, 2002); Spacenet, Inc. and StarBand Communications, Inc. Joint Comments, ET Docket 01-278 at Attachments 1, 2 (filed Feb. 12, 2002); Hughes Network Systems, Inc. Comments, ET Docket 01-278 at Exhibit A (filed Feb. 13, 2002).

<sup>7</sup> See Ku Band Radar Order at ¶ 1.

<sup>8</sup> *Id.* at ¶ 10.

<sup>9</sup> See Ku Band Radar Order at ¶ 20.

As the Commission is well aware, hundreds of thousands of Ku band VSATs are in use today. VSATs have grown in popularity because the small size of today's earth terminal antennas makes them less obtrusive, less expensive, and easier to install, than ever before. Today, VSATs are used by a wide variety of end users, such as gas stations, retail stores, fast food restaurants, government and law enforcement agencies, and medical professionals, to name a few. VSATs that are one meter or less in diameter can be installed easily on roofs of small commercial buildings and homes, making these terminals particularly suitable for broad deployment in retail districts and residential areas. As a result, VSATs today are often used in close proximity to parking lots, roads, and other areas where motor vehicles that contain operating radar detectors are parked or driven.

SIA members have been developing Ka band satellite systems to serve the evolving needs of today's VSAT and broadband customers. Commercial service over these systems is expected to commence in 2004 and will provide higher-speed and lower-cost satellite broadband service than ever before. Due to frequency propagation characteristics of the Ka band, VSATs operating in the Ka band can be even smaller than the Ku band terminals commonly used today. Thus, Ka band VSATs promise to be even more attractive, and more widely distributed, than Ku band VSATs today.

### **III. NATURE OF RADAR DETECTOR INTERFERENCE**

There are a number of reasons why the operation of unlicensed radar detector poses a particular threat to the licensed operations of VSAT networks. First, as noted above, many radar detectors on the market were found to radiate emissions well above the 500 microvolt per meter level specified in Part 15 for unlicensed devices---in some cases over 200 times that limit. No licensed service reasonably could be expected to tolerate such levels of

interference. And because VSATs are increasingly used by retail stores and gas stations, it is very common for a motor vehicle operating a radar detector to be located in close proximity to a VSAT used by such an establishment.

Although Part 15 requires the operator of a radar detector, and any other unlicensed device, to cease operation in the event the device causes harmful interference,<sup>10</sup> applying this rule to the operation of radar detectors is not practical. Radar detectors are used in vehicles that, by definition, are mobile. Therefore, it is not feasible to identify each individual source of radar detector interference into a VSAT network. Even when the operator of the radar detector causing the interference can be identified, he or she often fails to abide by the requirements of Part 15 and refuses to turn off the interfering device. For these reasons, the Commission concluded in its Order that “the only reasonable solution to this interference situation is to require radar detectors to comply with emission limits before they are marketed.”<sup>11</sup>

Radar detectors are designed to monitor for the presence of police radar in several frequency bands, including the 10.50-10.55 GHz, 24.05-24.25 GHz and 33.4-36.0 GHz bands. As the Commission has explained, radar detectors are designed with a tuning oscillator that operates away from the law enforcement radar frequencies being monitored in order to enhance detection of law enforcement operations, while at the same time making it more difficult for law enforcement itself to detect the operation of the radar detector. In the past, radar detector manufacturers have moved the oscillators to different frequencies to improve the ability to detect new types of law enforcement radar. In fact, it is this very type of design change that led to last year’s radar detector decision in the Ku band----a new type of radar detector had been designed that “swept” over the entire 500 MHz Ku band VSAT downlink band, and therefore generated

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<sup>10</sup> See 47 C.F.R. §§ 15.5, 15.101(b).

<sup>11</sup> Ku Band Radar Order at ¶ 11.

interference into VSAT operations throughout the band. Based on past experience, it is not inconceivable that radar detector manufacturers may once again move their tuning oscillator into other frequency bands suitable for VSAT operations, including the 18.3-18.8 GHz or 19.7-20.2 GHz downlink portions of the Ka band.

*For these reasons, the Commission should act now to establish appropriate emissions limits for the operation of unlicensed radar detectors in the GSO FSS Ka band downlink frequencies.*

#### **IV. Proposed Rule**

When the Commission first addressed the threat of radar detector interference, SIA members and other satellite industry participants supported the adoption of emissions limits for radar detectors in other GSO FSS bands, such as the Ka band. Because interference by radar detectors presented an immediate threat to many existing users of the Ku band, the Commission correctly focused on resolving that particular interference problem before addressing the potential for radar detector interference in other frequency bands. SIA now requests that the Commission turn its attention to the potential for interference by radar detectors into licensed GSO FSS satellite services in the downlink portion of the Ka band.

This inquiry is particularly timely because SIA members and other companies are beginning to implement their GSO FSS Ka band systems. Those Ka band systems promise to play an important role in fulfilling the Administration's goal of deploying broadband capabilities to America. Because of the compelling need to facilitate the development of broadband, as well as the need to provide regulatory certainty in the nascent Ka band, the Commission should now take the opportunity to avoid any chance that radar detectors could produce in the Ka band the type of harmful interference that they inflicted on Ku band VSAT operations.

By amending the existing Section 15.109(h) to include specifically the 18.3-18.8 GHz and 19.7-20.2 GHz downlink portion of the Ka band, the Commission can prevent the type of harmful interference experienced by VSATs in the Ku band from occurring in the Ka band. Because the Ka band will be used for the next generation of VSAT services, SIA believes that the same level of protection is warranted for Ka band VSATs, as for Ku band VSATs. SIA thus proposes that Section 15.109(h) be modified as follows (new text in bold):

Radar detectors shall comply with the emission limits in paragraph (a) of this section over the frequency ranges of 11.7-12.2 GHz, **18.3-18.8 GHz and 19.7-20.2 GHz.**

**V. CONCLUSION**

In order to prevent harmful interference by radar detectors into Ka band operations, SIA asks the Commission to institute a rulemaking proceeding to extend the emissions limits in Section 15.109(h) to the 18.3-18.8 GHz and 19.7-20.2 GHz GSO FSS downlink bands. By limiting radar detector emissions in those bands to the Part 15 emissions levels specified for unlicensed devices, the Commission will pave the way for the successful introduction of high-quality, nationwide satellite broadband services in the Ka band. Just as important, the Commission will forestall the occurrence of the same interference problems that required immediate regulatory action in the Ku band less than a year ago.

Respectfully submitted,

SATELLITE INDUSTRY ASSOCIATION

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